AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) A method of forming a silicon oxide layer, comprising:

positioning a substrate in a deposition chamber; and

forming a silicon oxide layer by iteratively performing the following steps multiple times:

oxidizing a silicon precursor gas in the deposition chamber at a first temperature to form a sub-layer of the silicon oxide layer; and

heating the substrate to a second temperature higher than the first temperature to anneal the sub-layer of the silicon oxide layer; wherein

the formation of each of the sub-layers formed subsequent to a first one of the sub-layers, the first sub-layer having been formed prior to all of the other of the sub-layers, is directly on a respective previously formed one of the sub-layers, and

the second temperature is approximate to the highest processing temperature subsequently applied to the substrate following formation of the silicon oxide layer.

2. (Original) The method of claim 1, further comprising:

providing an oxygen-rich environment in the deposition chamber during the oxidization of the silicon precursor gas.

3. (Original) The method of claim 2, further comprising:

providing an oxygen-rich environment in the deposition chamber during the heating of the substrate.

4. (Canceled).

5. (Original) The method of claim 2, wherein the silicon precursor gas is provided at low pressure.

6. (Original) The method of claim 5, wherein the low pressure ranges from 0.2 to 10 T.

7. (Original) The method of claim 6, wherein the oxygen-rich environment further comprises at least one gas selected from a group of gases consisting of nitrogen, helium, argon, ozone and steam.

8. (Original) The method of claim 1, wherein the step of heating the substrate occurs in an environment comprising at least one gas selected from a group of gases consisting of oxygen, nitrogen, helium, argon, ozone and steam.

9. (Original) The method of claim 1, wherein the second temperature ranges from 700 to 1200° C.

10. (Previously Presented) The method of claim 1, wherein the silicon precursor gas comprises at least one gas selected from a group of gases consisting of: tetraethoxysilane (TEOS), silane (SiH_4), dichlorosilane (DCS), diethlysilane (DES), and/or tetramethylcyclotetrasiloxane (TOMCATS).

11. (Previously Presented) A method of forming a silicon oxide layer, comprising:

positioning a substrate in a deposition chamber;

oxidizing a silicon precursor gas in the deposition chamber at a first temperature to form a silicon oxide layer; and

heating the substrate to a second temperature higher than the first temperature to anneal the silicon oxide layer;

wherein the silicon oxide layer is formed with a compressive stress, such that following the step of heating the substrate, the silicon oxide layer has very low internal stress.

12. (Original) The method of claim 1, further comprising:

doping the silicon oxide layer.

13. (Original) The method of claim 12, wherein the silicon oxide layer is doped with more than one dopants.

14. (Original) The method of claim 12, wherein doping the silicon oxide layer comprises implanting at least one dopant.

15. (Original) The method of claim 12, wherein doping the silicon comprises:

introducing a dopant containing gas into the deposition chamber.

16. (Original) A method of forming a microelectromechanical systems (MEMS), comprising:

forming a MEMS structure on a substrate; and thereafter,

positioning the substrate in a deposition chamber;

oxidizing a silicon precursor gas in the deposition chamber at a first temperature to form a silicon oxide layer; and thereafter,

heating the substrate to a second temperature higher than the first temperature to anneal the silicon oxide layer.

17. (Original) The method of claim 16, further comprising:

providing an oxygen-rich environment in the deposition chamber during the oxidization of the silicon precursor gas.

18. (Original) The method of claim 17, further comprising:

providing an oxygen-rich environment in the deposition chamber during the heating of the substrate.

19. (Original) The method of claim 18, further comprising:

etching the silicon oxide layer without producing an etch residue.

20. (Original) The method of claim 19, wherein etching the silicon oxide layer is performed using one selected from a group consisting of a vapor etch, a wet etch, and a plasma etch.

21. (Original) The method of claim 20, wherein etching the silicon oxide layer is performed using an HF-vapor etch.

22. (Previously Presented) The method of claim 16, wherein the second temperature is approximate to the highest processing temperature applied to the substrate following the annealing of the silicon oxide layer.

23. (Original) The method of claim 16, wherein the silicon precursor gas is provided at low pressure.

24. (Original) The method of claim 17, wherein the oxygen-rich environment further comprises at least one gas selected from a group of gases consisting of nitrogen, helium, argon, ozone and steam.

25. (Original) The method of claim 19, wherein heating the substrate occurs in an environment comprising at least one gas selected from a group of gases consisting of oxygen, nitrogen, helium, argon, ozone and steam.

26. (Original) The method of claim 16, wherein the second temperature ranges from 700 to 1200° C.

27. (Original) The method of claim 21, wherein etching the silicon oxide layer further comprises:

applying a first etching process to the silicon oxide layer which forms an etch residue;
oxidizing the etch residue; and
applying a second etching process to the oxidized etch residue.

28. (Original) The method of claim 27, wherein at least one of the first and second etching processes comprises a HF-vapor etch.

29. (Previously Presented) The method of claim 16, wherein the silicon precursor gas comprises at least one gas selected from a group of gases consisting of: tetraethoxysilane (TEOS), silane (SiH_4), dichlorosilane (DCS), diethlysilane (DES), and/or tetramethylcyclotetrasiloxane (TOMCATS).

30. (Original) The method of claim 16, wherein the silicon oxide layer is formed with a compressive stress, such that following the step of heating the substrate, the silicon oxide layer has very low internal stress.

31. (Withdrawn) A method of sealing a chamber of an electromechanical device having a mechanical structure overlying a substrate, wherein the mechanical structure is in the chamber, the method comprising:

depositing a sacrificial oxide layer over at least a portion of the mechanical structure by oxidizing a silicon precursor gas at a first temperature;

annealing the sacrificial oxide layer at a second temperature higher than the first temperature;

depositing a first encapsulation layer over the sacrificial oxide layer;

forming at least one vent through the first encapsulation layer to allow removal of at least a portion of the sacrificial oxide layer;

removing at least a portion of the sacrificial oxide layer to form the chamber;

depositing a second encapsulation layer over or in the vent to seal the chamber wherein the second encapsulation layer is a semiconductor material.

32. (Withdrawn) The method of claim 31, wherein depositing the sacrificial oxide layer is performed in an oxygen-rich environment.

33. (Withdrawn) The method of claim 32. wherein annealing the sacrificial oxide layer is performed in an oxygen-rich environment.

34. (Withdrawn) The method of claim 31, wherein the semiconductor material is comprised of polycrystalline silicon, amorphous silicon, silicon carbide, silicon/germanium, germanium, or gallium arsenide.

35. (Withdrawn) The method of claim 34, wherein the first encapsulation layer is comprised of a polycrystalline silicon, amorphous silicon, germanium, silicon/germanium or gallium arsenide.

36. (Withdrawn) The method of claim 31, wherein a first portion of the first encapsulation layer is comprised of a monocrystalline silicon and a second portion is comprised of a polycrystalline silicon.

37. (Withdrawn) The method of claim 31, wherein removing at least a portion of the sacrificial oxide layer to form the chamber comprises:

exposing the sacrificial oxide layer to an etching process through the vent.

38. (Withdrawn) The method of claim 37, wherein the etching processes comprises a HF-vapor etching process.

39. (Withdrawn) The method of claim 31, wherein the silicon precursor gas comprises at least one gas selected from a group of gases consisting of: tetraethoxysilane (TEOS), silane (SiH_4), dichlorosilane (DCS), diethlysilane (DES), and/or tetramethylcyclotetrasiloxane (TOMCATS).

40. (Withdrawn) The method of claim 31, wherein the silicon oxide layer is formed with a compressive stress, such that following the step of heating the substrate, the silicon oxide layer has very low internal stress.

41. (Currently Amended) A method of forming a silicon oxide layer, comprising:

positioning a substrate in a deposition chamber; and

forming a silicon oxide layer by iteratively performing the following steps multiple times:

decomposing a silicon precursor gas in the deposition chamber at a first temperature to form a sub-layer of the silicon oxide layer; and

heating the substrate to a second temperature higher than the first temperature to anneal the sub-layer of the silicon oxide layer;

wherein<u>:</u>

the formation of each of the sub-layers formed subsequent to a first one of the sub-layers, the first sub-layer having been formed prior to all of the other of the sub-layers, is directly on a respective previously formed one of the sub-layers<u>; and</u>

<u>the second temperature is approximate to the highest processing temperature subsequently applied to the substrate following formation of the silicon oxide layer</u>.

42. (Original) The method of claim 41, further comprising:

providing an oxygen-rich environment in the deposition chamber during the decomposition of the silicon precursor gas.

43. (Original) The method of claim 42, further comprising:

providing an oxygen-rich environment in the deposition chamber during the heating of the substrate.

44. (Canceled).

45. (Original) The method of claim 42, wherein the silicon precursor gas is provided at low pressure.

46. (Original) The method of claim 45, wherein the low pressure ranges from 0.2 to 10 T.

47. (Original) The method of claim 46, wherein the oxygen-rich environment further comprises at least one gas selected from a group of gases consisting of nitrogen, helium, argon, ozone and steam.

48. (Original) The method of claim 41, wherein the step of heating the substrate occurs in an environment comprising at least one gas selected from a group of gases consisting of oxygen, nitrogen, helium, argon, ozone and steam.

49. (Original) The method of claim 41, wherein the second temperature ranges from 700 to 1200° C.

50. (Previously Presented) The method of claim 41, wherein the silicon precursor gas comprises at least one gas selected from a group of gases consisting of: tetraethoxysilane (TEOS), silane (SiH_4), dichlorosilane (DCS), diethlysilane (DES), and/or tetramethylcyclotetrasiloxane (TOMCATS).

51. (Previously Presented) The method of claim 41, wherein the silicon oxide layer is formed with a compressive stress, such that following the step of heating the substrate, the silicon oxide layer has very low internal stress.

52. (Original) The method of claim 41, further comprising: doping the silicon oxide layer.

53. (Original) The method of claim 52, wherein the silicon oxide layer is doped with more than one dopants.

54. (Original) The method of claim 52, wherein doping the silicon oxide layer comprises implanting at least one dopant.

55. (Original) The method of claim 52, wherein doping the silicon comprises: introducing a dopant containing gas into the deposition chamber.

56. (Previously Presented) The method of claim 16, further comprising:

etching the silicon oxide layer, wherein the etching comprises:

applying a first etching process to the silicon oxide layer which forms an etch residue;

oxidizing the etch residue; and

applying a second etching process to the oxidized etch residue.